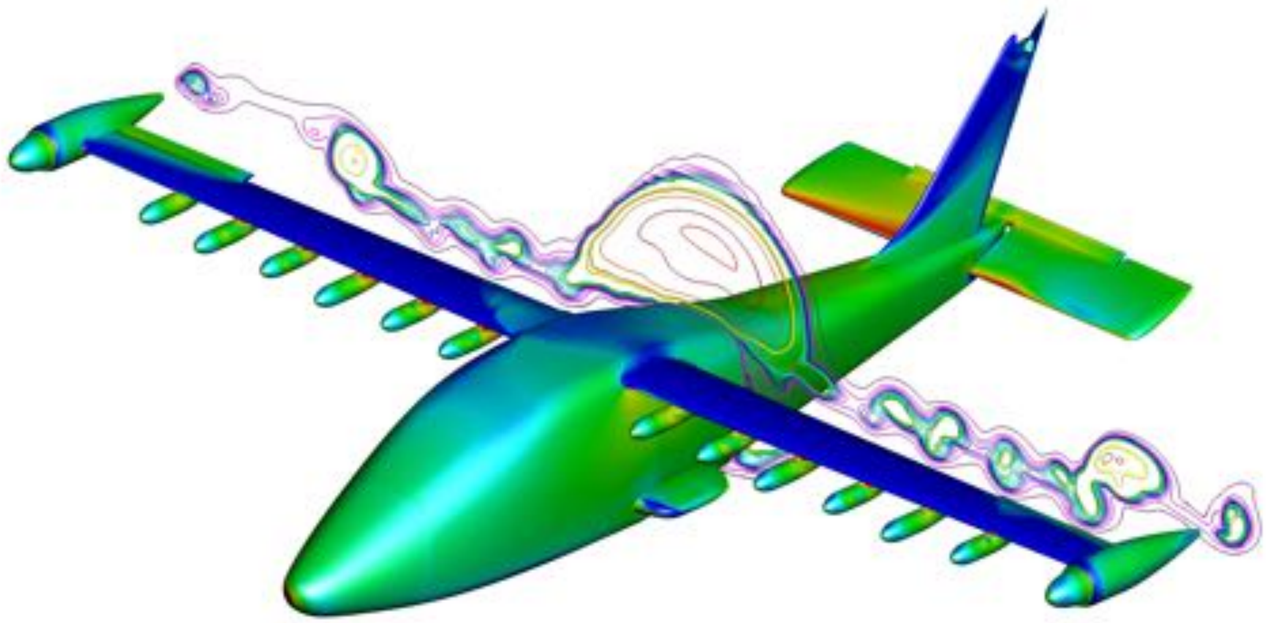
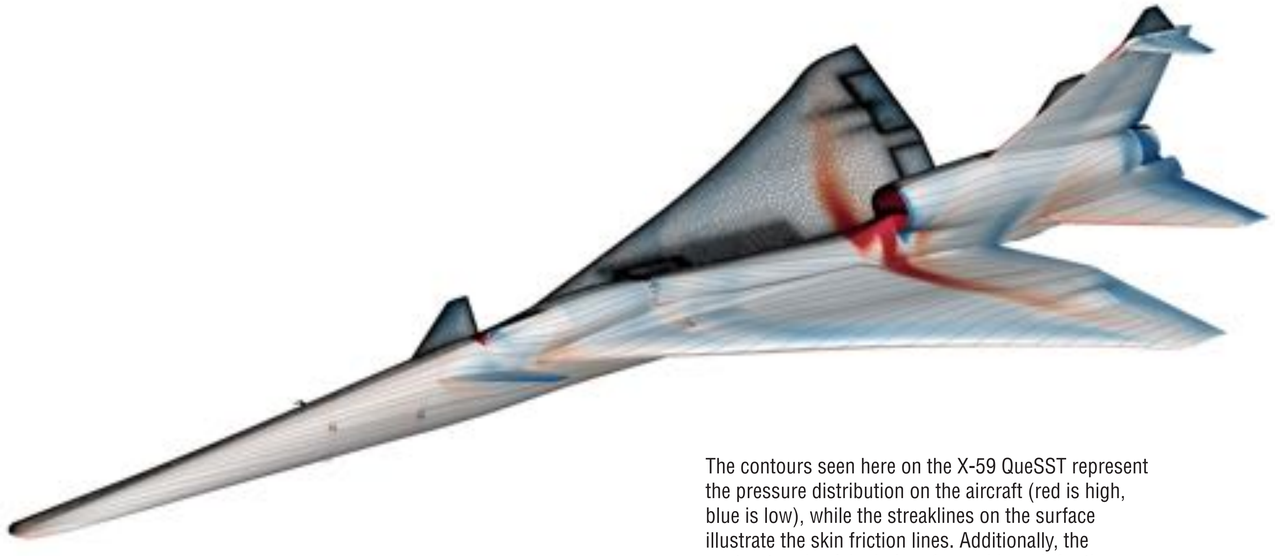


X-57 flow field visualization for a worst-case flight condition with all control surfaces deflected. The surface contour illustrates the pressure distribution on the body (red is high, blue is low) while the line contours illustrate the vorticity magnitude immediately downstream of the wing (red is high, purple is low), showing the wake of the wing and pylons. *Daniel Maldonado, Jared Duensing, NASA/Ames*



The contours seen here on the X-59 QueSST represent the pressure distribution on the aircraft (red is high, blue is low), while the streaklines on the surface illustrate the skin friction lines. Additionally, the unstructured polyhedral surface grid used for the computation is shown on the right half of the aircraft body. *Emre Sozer, James Jensen, NASA/Ames*

National Aeronautics and Space Administration

# Computational Simulations of Next-Generation Aircraft

The Launch Ascent and Vehicle Aerodynamics (LAVA) group based at NASA's Ames Research Center performs computational fluid dynamics (CFD) analysis for a variety of cutting-edge aircraft concepts to support the agency's Aeronautics Mission Directorate. These aircraft include the fuel-efficient transonic truss-braced wing (TTBW), the all-electric X-57 Maxwell, and the X-59 QueSST designed with quiet supersonic technology. The LAVA group focuses on assessing next-generation technologies utilized in these designs, and validating results against experimental data. NASA's Pleiades supercomputer is used to produce the steady-state flow simulations required so that each project team can better understand the performance of these highly complex vehicles.

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